



THE OHIO STATE UNIVERSITY

STAT 3202

Introduction to Statistical Inference for Data Analytics (24816)

Autumn 2026

Syllabus - Instructor Information

Laura Kubatko

Professional Qualifications

Ph.D., Biostatistics, The Ohio State University

M.S., Statistics, The Ohio State University

B.A., Biology, Hiram College

B.A., Mathematics, Hiram College

Syllabus - Required or Recommended Readings

Required text: Mathematical Statistics with Applications, 7th edition, by Wackerly, Mendenhall, and Scheaffer, Brooks/Cole, Cengage Learning, 2008.

Access this eBook through the CARMENBOOKS reader link in the course navigation of your Carmen course for this class.

Syllabus - Course Schedule

Week	Topics
1	Intro to statistical inference, point estimation
2	Bias, mean squared error, common unbiased point estimators
3	Consistency, sufficiency
4	Method of moments estimation, maximum likelihood estimation
5	Review for exam 1, Exam 1
6	Interval estimation, confidence intervals for means
7	Confidence intervals for the difference in means and for paired data
8	Confidence intervals for proportions and the difference in proportions
9	Introduction to hypothesis testing, type I and type II errors, p-values
10	Hypothesis testing, p-values, power, tests for means
11	Review for Exam 2, Exam 2
12	Hypothesis tests for variances
13	Nonparametric tests
14-15	Simulation-based tests, Bootstrap
16	Review for final exam

FINAL EXAM: Friday, December 11, 8:00-9:45am

Course Details - Instructor Contact Details

Dr. Laura Kubatko -- you can call me "Dr. K"

Email: Kubatko.2@osu.edu

Statistics Department office: 221 Cockins Hall

EEOB Department office: 492 Aronoff Labs

Office hours: Tuesdays 11am-noon, 492 Aronoff Labs; Wednesdays, 11am-noon, 492 Aronoff Labs

Course Details - Additional Instructional Staff

Graduate Teaching Assistant: Kiljae Lee

Email: lee.10428@osu.edu

Office hours: TBA

Course Details - Class Meeting Details

Class Meeting Details: 09:35 AM-10:55 AM - Pomerene Hall 250 - TR

Course Details - Course Description

Foundational inferential methods for learning about populations from samples, including point and interval estimation, and the formulation and testing of hypotheses. Statistical theory is introduced to justify the approaches. The course emphasizes challenges that arise when applying classical ideas to big data, partially through the use of computational and simulation techniques. Prereq: C- or better in 3201, or permission of instructor. Not open to students with credit for 4202.

Prerequisite(s) / Corequisites: Prereq: C- or better in 3201, or permission of instructor. Not open to students with credit for 4202.

Course Details - Course Learning Outcomes

By the end of this course, students should successfully be able to:

- Compare the performance of estimators via bias, mean squared error, consistency, and sufficiency.
- Use Monte Carlo simulation to model the performance of estimators and testing procedures.
- Propose estimators via the method of moments and maximum likelihood estimation.
- Use the Central Limit Theorem to model the sample distribution of a sample mean.
- Conduct hypothesis tests on mean and variance parameters, including t-tests, chi-square tests, and F tests.
- Determine and interpret the power and type-II error of a test.
- Use bootstrapping to conduct inference.
- Perform nonparametric hypothesis tests on mean parameters.

Course Details - Canvas Assignment Schedule

Date	Name	Assignment Type	Points
9/5/26	Lab 1	Assignment	20

Course Details - Grading Policy

Assessment category	Weight
Lab assignments	20%
Quizzes	10%
Exam #1	20%
Exam #2	20%
Final exam	30%

Course Details - Grading Scale

Letter Grade	Percentage Range
A	100% to 93%
A-	< 93% to 90%
B+	< 90% to 87%
B	< 87% to 83%
B-	< 83% to 80%
C+	< 80% to 77%
C	< 77% to 73%
C-	< 73% to 70%
D+	< 70% to 67%
D	< 67% to 60%
E	< 60% to 0%

Course Details - AI Use Policy

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[of Student Conduct](#). Please check with your instructor if you have questions.

These levels may apply to the entire course or specific assignments, as indicated by the instructor:

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Syllabus - University Policies

Office of Undergraduate Education - Standard Syllabus Statements

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